RCS/ERSP QAPP Attachment 1. Wolf Creek environmental radiation surveillance checklist.

Sample description	Analyses required	Location	Comments	Date due
WEEKLY Air particulate and radioiodine charcoal cartridge (WCA)	**PARTICULATE** Gross β/γ field count Weekly 5-filter composite γ isotopic **CHARCOAL** Gross γ field count (Eq. ^{131}I) Weekly 5-cartridge composite γ isotopic **FLAGS** γ isotopic **Fission product activity or activated corrosion product activity above MDL** Field counts Indicator > 2x Control (β/γ) or >100 cpm gross γ, requires individual g isotopic analysis	A-1, Sharpe H-1, East of Coffey County Lake L-1, Burlington P-1, New Strawn D-1, Harris (Control)	A-1, P-1, H-1 and P-2 are collocated with WCNOC	Every Thursday
MONTHLY Surface water (WCSW)	γ isotopic on each sample collected Tritium (H3) monthly on each sample. **FLAGS** **Fission product activity, other than Coffey County Lake (CCL) ^{3}H, or activated corrosion product activity above MDL** **CCL ^{3}H > 20,000 pCi/ℓ** Control sample ^{3}H > 2x MDL requires re-analysis	J-1, CCL spillway, as needed. Q-1, CCL discharge cove (DC) N-1, John Redmond Reservoir (Control)	Samples are split with WCNOC	Third Thursday of each month
Drinking water (WCDW)	Tritium (H3) and γ isotopic on each sample collected Sr80/90 on quarterly composite **FLAGS** **Fission product activity or activated corrosion product activity above method detection limits** ^{3}H > 2x MDL requires re-analysis	H-1, LeRoy water treatment facility settling basin	Collocated with WCNOC	First Thursday of the month. (Collected by WCNOC)

RCS/ERSP QAPP Attachment 1. Wolf Creek environmental radiation surveillance checklist.

Sample description	Analyses required	Location	Comments	Date due
QUARTERLY Direct Radiation (WCTLD)	TLDs processed within 3 days after collection **FLAGS** Indicator > 3x Control	31 locations: see procedure RCP/ERS-001	14 sites are collocated TLD collection at CCL baffle dikes requires WCNOC notification	First week of new quarter
Milk (WCM)	γ isotopic on each sample collected (Ion Exchange Chromatography is specified for low-level ^{131}I analysis). ^{89}Sr and ^{90}Sr are done annually **Flags** **<u>Any</u> fission or activation products above MDL**	R-1, Lebo (Control)	There are currently no available milk sampling indicator locations available within the WCGS 10 mile EPZ	First Thursday of the new quarter
SEMI-ANNUALLY Fish (WCF)	γ Isotopic on each sample collected. Tritium (^{3}H) in tissue analysis on one type of fish from each location. **FLAGS** **Fission product activity, ^{3}H, or activated corrosion products above MDL.** **CCL ^{3}H > 20,000 pCi/kg**	<u>2 Locations</u> N-1, Below John Redmond Reservoir on Neosho River (Control) Q-1, CCL usually in the discharge cove but anywhere on CCL. A planned minimum sample collection effort consists of **one game** and **one rough fish** from the control location, and **three game** and **two rough fish** from the indicator location	Samples of the following species are targeted for collection in the Coffee County Lake: Common Carp, Smallmouth Buffalo, Big mouth Buffalo, Channel Catfish, Flathead Catfish, White Bass, White Bass and Striped Bass Hybrids, Smallmouth Bass, Largemouth Bass, White Crappie, Gizzard Shad, and Walleye. An effort should be made to collect at least six different species over the 12-month period.	Target collection dates are in the months of May and October
ANNUALLY Terrestrial vegetation, **Human Food crops** (Trending) (WCFV)	γ isotopic on each sample collected **FLAGS** **Fission product activity or activated corrosion products above MDL.** ^{89}Sr and ^{90}Sr analysis if γ isotopic analysis shows the presence of two or more fission or activation products (except ^{137}Cs or ^{60}Co) above MDL	<u>2 Locations</u> Garden in Sector A, G, or R Crops in Sectors H through L	Garden and (potential) irrigated crop samples split with WCNOC	Based on Seasonal harvest times

RCS/ERSP QAPP Attachment 1. Wolf Creek environmental radiation surveillance checklist.

Sample description	Analyses required	Location	Comments	Date due
ANNUALLY, cont. Aquatic vegetation (Trending) (WCAL or WCRA)	γ isotopic on each sample collected, Sr89/90 on CCL Discharge Cove Samples **FLAGS** **Fission product activity or activated corrosion products above MDL in locations other than the Discharge Cove.** ^{89}Sr and ^{90}Sr analysis if γ isotopic analysis in locations other than the Discharge Cove shows the presence of two or more fission or activation products (except ^{137}Cs or ^{60}Co) above MDL.	5 Locations J-1, Wolf Creek below CCL N-1, John Redmond Reservoir (Control) P-1, CCL public fishing area Q-1, CCL DC R-1, CCL EEA	AL = Algae RA = Rooted aquatic Samples may be rooted aquatic plants **or** algae. P-1, Q-1, and R-1 are split with WCNOC	Target collection dates are in the months of May and October **Aquatic vegetation is not always available in target months. Monitor growth to obtain samples as they become available.**
Soil (Trending) (WCS)	γ isotopic on each sample collected **FLAGS** **Fission product activity or activated corrosion products above MDL.** ^{89}Sr and ^{90}Sr analysis if γ isotopic analysis shows the presence of two or more fission or activation products (except ^{137}Cs or ^{60}Co) above MDL	5 Locations A-1, North of WCGS E-1, Scott Valley Church (Control) H-1, East of CCL dam P-1, CCL public fishing area R-1, CCL environmental educational area (EEA)	P-1 and R-1 are split with WCNOC. Soil and pasturage are obtained concurrently	Target collection dates are in the months of May and October
Pasturage (Trending) (WCFV)	γ isotopic on each sample collected **FLAGS** **Fission product activity or activated corrosion products above MDL**. ^{89}Sr and ^{90}Sr analysis if γ isotopic analysis shows the presence of two or more fission or activation products above MDL	5 Locations A-1, North of WCGS E-1, Scott Valley Church (Control) H-1, East of CCL dam P-1, CCL public fishing area R-1, CCL environmental educational area (EEA)	P-1 and R-1 are split with WCNOC. Soil and pasturage are obtained concurrently	Target collection dates are in the months of May and October

RCS/ERSP QAPP Attachment 1. Wolf Creek environmental radiation surveillance checklist.

Sample description	Analyses required	Location	Comments	Date due
ANNUALLY, cont. Bottom and Shoreline sediment (Trending) (WCBS)	γ isotopic on each sample collected. Sr 89/90 on all samples from the Discharge Cove. **FLAGS** **Fission product activity or activated corrosion products above MDL**. ^{89}Sr and ^{90}Sr analysis if γ isotopic analysis in locations other than the Discharge Cove shows the presence of two or more fission or activation products (except ^{137}Cs or ^{60}Co) above MDL.	6 Locations AN-1, John Redmond Reservoir (Control) AP-1, CCL public fishing area (Shoreline only) AQ-1, CCL DC AR-2 CCL DC (Bottom only) AR-1, CCL EEA AJ-1, Wolf Creek below CCL (Bottom and/or Shoreline as available)	AN-1, AQ-1, AR-1 and AP-1 are split with WCNOC	Target collection dates are in the months of May and October
Ground water (WCGW)	Gross α and β, γ isotopic, tritium (^{3}H) on each sample collected **FLAGS** **γ isotopic shows fission or activation products, gross β of > 15pCi/ℓ** H^3 levels > 2x MDL requires re-analysis.	4 Locations B-1 (Control) J-1 L-2 N-1	Samples are split with WCNOC	
Surface water (Trending) (WCSW)	γ isotopic and tritium (^{3}H) **FLAGS** **Fission product activity, ^{3}H, or activated corrosion product activity above MDL**	P-2, New Strawn City Lake		
Animals (WCB) (Game and Domestic meat.)	γ isotopic on each sample collected **FLAGS** **Fission product activity or activated corrosion product activity above method detection limits**	Nearest site boundary in Sectors A, R, G, or H Alternate areas: near Q-1 (CCL DC), J-1 (Wolf Creek below CCL), and areas near the Neosho River below the Wolf Creek Neosho River confluence In vicinity of N-1 (John Redmond Reservoir) or other areas ≥ 10 miles distant from WCGS	Samples collected on WCNOC property are split	**These samples have been discontinued from the planned program until further notice. Sample collection and analytical procedures are maintained for emergency response purposes.**

RCS/ERSP QAPP Attachment 1. Wolf Creek environmental radiation surveillance checklist.

Sample description	Analyses required	Location	Comments	Date due
Random Samples Soil Samples (WCRS)	γ isotopic on each sample collected **FLAGS** **Fission product activity or activated corrosion products above MDL.** ^{89}Sr and ^{90}Sr analysis if γ isotopic analysis shows the presence of two or more fission or activation products (except ^{137}Cs) above MDL	10 random locations Anywhere within the 50 mile IPZ. Primarily within the 10 mile EPZ in sectors P-D and G-K.	Samples collected on WCNOC property will be split.	Year round collection with primary focus in Spring and Autumn.
Sediments (WCRBS, WCRSS)	γ isotopic on each sample collected, ^{89}Sr and ^{90}Sr analysis on Discharge Cove. **FLAGS** **Two or more Fission products or activated corrosion products above MDL.** ^{89}Sr and ^{90}Sr analysis if γ isotopic analysis in locations other than the Discharge Cove shows the presence of two or more fission or activation products (except ^{137}Cs or ^{60}Co) above MDL.	12 Random Locations (bottom **or** Shoreline) on CCL Anywhere on CCL , primary focus in sectors H - A 4 Random Locations (bottom or shoreline) Samples will be collected from random locations downstream of CCL on the Neosho River and Wolf Creek. **Shoreline or bottom sediment samples.**	Bottom and Shoreline sediment samples do not need to be co-located.	Year round collection with primary focus in Spring and Autumn.

RCS/ERSP QAPP Attachment 1. Wolf Creek environmental radiation surveillance checklist.

Sample description	Analyses required	Location	Comments	Date due
Aquatic Vegetation (Rooted Aquatics or Algae)(WCRAL, (WCRRA)	γ isotopic on each sample collected, ^{89}Sr and ^{90}Sr analysis on Discharge Cove samples. **FLAGS** **Two or more Fission products or activated corrosion products above MDL.** ^{89}Sr and ^{90}Sr analysis if γ isotopic analysis in locations other than the Discharge Cove shows the presence of two or more fission or activation products (except ^{137}Cs or ^{60}Co) above MDL.	6 Random Locations **Random Aquatic vegetation** samples will be collected on CCL and areas within the 10-mile EPZ, downstream of the CCL discharge on Wolf creek, the Neosho River and their tributaries.	Samples may be rooted aquatic plants **or** algae.	Year round collection with primary focus in Spring and Autumn.
Terrestrial Vegetation (Food/ Feed and Pasturage) (WCRFV)	γ isotopic on each sample collected. **FLAGS** **Two or more Fission products or activated corrosion products above MDL.** ^{89}Sr and ^{90}Sr analysis if γ isotopic analysis shows the presence of two or more fission or activation products above MDL	10 Random Locations These locations should be concentrated in, but not restricted to, the primary downwind sectors (P-C and G-K) and within the 10-mile EPZ or from any area where liquid plant wastes have been discharged (broadly interpreted to include crops irrigated with Neosho River water from locations downstream of the Neosho River-Wolf Creek confluence in sectors J and H.	Terrestrial vegetation samples should include but not be limited to: Soybeans (plants, oil or silage), corn (food and silage), wheat (food and graze), sorghum (animal feed), fruit trees (food), broad leaf vegetables, common pasturage plants and tuberous/root food products.	The sample collection effort should be distributed over the year and at the times of harvest, to allow for a variety of samples in different growing seasons.